IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 6, Issue 1, January 2026
Impact Factor: 7.67

From Safety to Value Creation: Marketing and Economic Implications of IoT-Based Vehicle Accident Detection Systems

Dr. Nisha Sawant[1] and Dr. Subasish Mohanty[2]
Asst. Prof. in IT & Computer Applications, Goa Multi Faculty College, Dharbandora (Goa University)[1]
Asst. Professor (Sr. Gr.) in Commerce, Goa Multi Faculty College, Dharbandora (Goa University)[2]
prof.nishasawant@gmail.com[1] and subasish.147@gmail.com[2]

Abstract: *Road traffic accidents impose severe human and economic costs, particularly in emerging economies where delayed emergency response significantly increases fatality rates. This study develops and empirically evaluates an IoT-enabled real-time vehicle accident detection and tracking system using GPS, GSM, and sensor technologies, integrating perspectives from engineering, marketing, and economics. Beyond technical validation, the study examines user technology acceptance and perceived value through a structured survey and Structural Equation Modeling (SEM). Results indicate that the proposed system significantly improves emergency response time, enhances perceived safety value, and demonstrates strong behavioral intention toward adoption. Economic analysis further suggests that large-scale deployment can reduce accident-related healthcare and productivity losses, contributing to macro-economic efficiency. The study advances interdisciplinary research by positioning accident detection systems as marketable smart-safety solutions with measurable societal and commercial value.*

Keywords: IoT, accident detection, GPS, GSM, technology acceptance, perceived value, SEM, smart mobility

DOI: 10.48175/IJARSCT-30719